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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,800	02/03/2004	Young-Suk Chung	1594.1314	9248
21171	7590	12/28/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			GRAVINI, STEPHEN MICHAEL	
			ART UNIT	PAPER NUMBER
			3749	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Office Action Summary

Application No.

10/769,800

Applicant(s)

CHUNG, YOUNG-SUK

Examiner

Stephen Gravini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanigawa et al. (US 5,887,456). Tanigawa is considered to disclose the claimed machine comprising:

a condensing duct **7** to guide the circulated air having passed through the rotating tub to be drawn to the drying heater **44**;

a cold water supply unit to supply cold water to an inside of the condensing duct (please see column 9 line 50);

a water temperature detecting unit **8** to detect temperatures of water condensed in the condensing duct through contact between the circulated air and the cold water; and

a controller **24** to determine whether an end of a drying process is reached based on the temperatures of the water detected by the water temperature detecting unit, and to terminate the drying process according to a result of the determination. Tanigawa is considered to also disclose the claimed spray nozzle **100**, cold water supply hose **106**, drying valve **95**, and counter to accumulatively count a drying time while the drying process is performed, wherein the controller is provided with the accumulatively counted time from the counter to determine whether the end of the drying process is reached (please see column 14 line 16).

Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman et.al. (US 5,806,204). Hoffman is considered to disclose the claimed machine comprising:

a water temperature detecting unit **38** to detect temperatures of water condensed through contact between the circulated air and cold water supplied from an external water source to dry the laundry;

a counter to accumulatively count a drying time while a drying process is performed; and

a controller to determine whether an end of the drying process is reached based on the temperatures of the water detected by the water temperature detecting unit and the drying time accumulatively counted by the counter, and to terminate the drying process according to a result of the determination (please see column 3 lines 20 through 40 wherein the disclosed present temperature and moisture parameters implies the claimed time controlled drying process because in both the disclosure and claims, it is considered that drying will stop after a preset parameter (i.e. temperature or moisture) is reached after a given determined time has been counted with respect to measure parameters). Hoffman is also considered to disclose the claimed wherein the controller determines whether the end of the drying process is reached when the temperature of the water detected by the water temperature detecting unit decreases, wherein the controller determines whether the end of the drying process is reached by detecting the water temperatures at regular drying time intervals using the water temperature detecting unit, and comparing an accumulated temperature difference, which is

calculated by accumulating temperature differences obtained in set sections, with a set value, and wherein the controller further determines whether the end of the drying process is reached by increasing a number of detections if the accumulated temperature difference satisfy the set value, and by comparing the increased number of detections with a set number of detections corresponding to the accumulatively counted drying time under the same reason discussed in rejection of the independent claim.

Claims 15, 31-34, and 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Clodic (US 6,161,306). Clodic is considered to disclose the claimed machine and method comprising:

- a heater **8**;

- a condensing duct **4** to guide the circulated air from the rotating tub to the heater;

- a water supplier **14** to supply water to the condensing duct such that water is condensed from the circulated air in the condensing duct by communication between the circulated air and the supplied water;

- a temperature detector **28** or **29** to detect a temperature of the condensed water;
- and

- a controller **31** to terminate a drying process according to changes in the temperature of the condensed water or alternatively

- condensing water from the circulated air by communication between the circulated air and supplied water (please see column 4 lines 26-35);

- detecting changes in temperature of the condensed water (please see column 4 lines 42-51); and

terminating a drying process if an end of the drying process is determined to be reached based upon the detected changes in the temperature of the condensed water (please see column 4 line 44). Clodic is considered to also disclose the claimed end of the drying process is reached is determined responsive to counting an accumulatively counted drying time while the drying process is performed (column 3 lines 38-53 wherein the disclosed level or temperature sensing implies the claimed time counted because level or temperature will change over sensed/counted time), detected water temperature decrease (column 3 line 38), detecting the water temperature at regular drying time intervals, accumulating temperature differences, which are accumulated over corresponding ones of the regular time intervals, and comparing the accumulated temperature difference with a set value (column 3 lines 38-43), controlling an opening of the drying valve, so that the water supplied is sprayed to an inside of the condensing duct by the spray nozzle (column 4 line 18), and calculating a difference between initial and final temperatures in each of the corresponding time intervals (again please see column 3 lines 38-53 wherein the disclosed level or temperature sensing implies the claimed time counted because level or temperature will change over sensed/counted time).

Claim Rejections - 35 USC § 103

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanigawa in view of Clodic. Tanigawa is considered to disclose the claimed invention, as discussed above under the anticipatory rejection, except for the claimed submerged detector and its disposal location. Clodic, another laundry machine, is considered to

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disclose a submerged detector and its disposal location at column 3 lines 33-43. It would have been obvious to one skilled in the art to combine the teachings of Tanigawa with the considered disclosed temperature detector location for the purpose of monitoring saturation temperature.

Claims 10-14 and 16-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 4,250,628) in view of Turetta et al. (US 5,228,212).

Smith is considered to disclose a method and machine comprising:

detecting temperatures of water condensed through contact between the circulated air and cold water supplied from an external water source to dry the laundry at column 5 lines 1-9) or

a temperature detector **64** to detect a temperature of the condensed water.

Smith is considered to also disclose an air outlet **30** disposed in the lower portion of the condensing duct to pass the circulated air there through, wherein the temperature detector is disposed between the air outlet and a bottom of the condensing duct, a spray nozzle **26** disposed in the condensing duct, a water supply hose **100** connected to the spray nozzle, and a drying valve **101** disposed in the water supply hose to selectively supply the water supplied from an external water source, drying time counter (column 12 lines 32-36), a drying heater **88**, a discharge hose **40**, and wherein the drying valve operates so that an amount of water collecting in the condensing duct is greater than an amount of water discharged through the discharging conduit, so that the water temperature detector is submerged in the collected water (column 7 lines 43-46).

Smith is considered to disclose the claimed invention, except for the claimed terminating

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a drying process if an end of the drying process is determined to be reached based upon the detected water temperatures, a condensing duct to condense water from circulated air passing through the washing machine, and a controller to terminate a drying process according to changes in the temperature of the condensed water, a rotating tub, and a centrifugal fan mounted on the water tub and having an inlet and an outlet. Turetta, another laundry machine, is considered to disclose features including determining a drying process if an end of the drying process is determined to be reached based upon the detected water temperatures at column 4 lines 29-41, a condensing duct **15** to condense water from circulated air passing through the washing machine, a controller **27** to terminate a drying process according to changes in the temperature of the condensed water, a rotating tub **6**, and a centrifugal fan **7** mounted on the water tub and having an inlet and an outlet. It would have been obvious to one skilled in the art to combine the teachings of Smith with the claimed features considered to be found in Turetta for the purpose of providing a condensate controlled timing feature in laundering clothes such that a drying process is effectively terminated based on various drying variables, such as time, temperature or moisture values .

Furthermore Smith in view of Turetta is considered to disclose the claimed invention, as discussed in the obviousness rejection above, except for the claimed condensate submerged temperature detector. Examiner takes Official notice that the temperature detector location of Smith in view of Turetta is an obvious variation of the detector location claimed because condensate is at a saturation temperature and the temperature detection of the exhausted steam, as disclosed by Smith in view of Turetta

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with be at saturation temperature since it is just prior to being discharged into the condensate. It would have been obvious to one skilled in the art to claim a temperature detector location, since it is considered old and well known that a temperature of a saturated steam is the same as saturated condensate. Finally Smith in view of Turetta is considered to disclose the claimed invention, as discussed in the obviousness rejection above, except for detection set comparisons and curved condensing duct. It would have been an obvious matter or design choice to one skilled in the art to use a set comparison drying variable with a curved condensing duct because applicants have not distinguished the merits of those claimed features over what is already disclosed in the prior art.

Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clodic. Clodic is considered to disclose a method, as discussed above under the anticipatory rejection, except for the claimed detection set comparisons. It would have been an obvious matter or design choice to one skilled in the art to use a set comparison drying variable because applicants have not distinguished the merits of those claimed features over what is already disclosed in the prior art.

Response to Arguments

Applicant's arguments filed October 28, 2004 have been fully considered but they are not persuasive.

anticipation

Applicant argues that a water temperature detecting unit to detect the temperatures of condensed water is not disclosed. However the recited water

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temperature detecting unit to detect temperatures of water condensed in the condensing duct through contact between the circulated air and cold water claimed is reasonably and broadly construed in light of the specification such that the argued feature is considered to give the claimed feature a narrower meaning than the actual claim language. Water condensed in a condensing duct through contact between circulated air and cold water implies a saturated condition. To one skilled in the art, saturated conditions of a single temperature result when condensing circulating air and condensed cold water are in contact, such as in the claimed condensing duct.

Therefore, a water temperature detecting unit to detect condensed water temperature would be anticipated by any temperature detecting unit sensing temperature in a saturated atmosphere. In this case, the claimed water temperature detecting unit is measuring saturated temperature conditions in a condensing duct so each of the disclosed temperature detecting units is considered to anticipate each of the claimed embodiments. Each reference addressed by applicant will be discussed to show support for the anticipatory rejections above.

Tanigawa discloses an exhaust air temperature sensor **8** for an exhaust duct **7** associated with a drum **3** (column 8 lines 47-50). Condensed saturated water passes through the exhaust duct and is discharged through a drain port **28** (column 9 lines 55-60). Since saturation is expressly disclosed in Tanigawa, the disclosed sensor is considered to anticipate the claimed water temperature detecting unit because at saturation, the exhaust air temperature is equal to the condensed water temperature.

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Therefore, Tanigawa is considered to anticipate the claimed invention. It is considered that the anticipatory rejection under Tanigawa is considered proper and maintained.

As applicant admittedly argues, Hoffman discloses relates to a material dryer using vapor condensation and teaches a device that includes chamber **12** and sensors **38** which sense the relative humidity, pressure, and temperature of the drying chamber. Hoffman also discloses moisture condensed in the chamber and collected in an internal collection tank **31** (column 4 lines 52-55). Again to those skilled in the art, under saturation conditions temperature sensors will sense water condensed since condensation occurs in the chamber where the temperature sensor is located. Therefore, it is considered that the anticipatory rejection under Hoffman is considered proper and maintained.

Clodic discloses probes that measure temperature of fluid flowing in a principal circuit, as argued by applicant. Clodic also discloses condensation in a circuit open to one of the disclosed probes (column 3 lines 7-26). To those skilled in the art, a probe measuring a fluid in open contact with a condensed fluid will be at saturation temperature such that the claimed temperature detector to detect a temperature of the condensed water is considered to be anticipated by the disclosed probe. Therefore, it is considered that the anticipatory rejection under Clodic is considered proper and maintained.

obviousness

Applicant argues that secondary reference does not disclose the claimed feature of terminating a drying process if an end of the drying process is determined to be

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reached based upon the detected water temperatures. However, in secondary reference Turretta, it can be implied that a drying process is terminated based on water temperature. Turretta discloses clothes drying is halted when moisture is not detected in clothing (column 4 lines 29-41). Moisture detection, as taught by Turretta, is achieved through capacitors and resistors. To one skilled in the art, condensed water in contact with vapor is at saturation temperature. After all the water has evaporated, temperature will begin to rise. As disclosed in Turretta, when temperature rises based on evaporated water, capacitance and resistance values will change to send a signal to halt drying (column 5 lines 16-66). Therefore, Turretta is considered to implicitly anticipate the claimed feature of terminating a drying process if an end of the drying process is determined to be reached based upon the detected water temperatures because the temperature change is sensed by a capacitor and/or resistor to end a drying process. Therefore, it is considered that the obviousness rejection under Smith in view of Turretta is considered proper and maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gravini whose telephone number is ~~703-308-7570~~⁵⁷¹⁻²⁷²⁻⁴⁸⁷⁵. The examiner can normally be reached on normal weekday business hours (east coast time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira S. Lazarus can be reached on ~~703-308-1935~~^{571 272 4877}. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

smg

December 21, 2004

